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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/625,096

07/22/2003

Norman Herron

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7590

01/12/2005

EXAMINER

GARRETT, DAWN L

E I DU PONT DE NEMOURS AND COMPANY
LEGAL PATENT RECORDS CENTER
BARLEY MILL PLAZA 25/1128
4417 LANCASTER PIKE
WILMINGTON, DE 19805

ART UNIT

PAPER NUMBER

1774

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/625,096

Applicant(s)

HERRON ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 2-5, 7, 10, 11, 16-19, 21, 23, 24, 28, 30-33, 35, 37 and 38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 8, 9, 12-15, 20, 22, 25-27, 29, 34, 36 and 39-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7-22-03 & 2-4-04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2-13-04; 12-11-03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This Office action is responsive to the response to the election of species requirement dated October 27, 2004. Applicants elected the following single species of the polymer metal complex for prosecution on the merits:

- a) conjugated polymer backbone: fluorenediyls
- b) a first-type functional groups: beta-dicarbonyls
- c) a first-type inert spacer groups: alkyl; and
- d) a metal species: Iridium

No second-type functional group is present in the species selected.

The examiner has found the selected species to be allowable and has selected the following species as the next considered species:

- a) conjugated polymer backbone: fluorenediyls
- b) a first-type functional groups: hydroxyquinolines
- c) a first-type inert spacer groups: aromatic; and
- d) a metal species: Iridium

No second-type functional group is present in the species selected.

Claims 1, 6, 8, 9, 12-15, 20, 22, 25-27, 29, 34, 36, and 39-41 are presently under consideration. Claims 2-5, 7, 10, 11, 16-19, 21, 23, 24, 28, 30-33, 35, 37, and 38 are withdrawn as being drawn to non-elected species.

Claim Objections

2. Claims 13, 14, 26, 27, 40 and 41 are objected to because of the following informalities:

In these claims, it is suggested “metal” be changed to “metals”. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 6, 8, 9, 12-15, 20, 22, 25-27, 29, 34, 36, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doi et al. (EP 1138746; cited by applicant). Doi et al. discloses polymeric fluorescent substances comprising a main chain and branching portions. The polymeric substance may include a fluorene repeating group per the instant “conjugated polymer backbone” (see page 10, lines 26-34). The polymeric may also include a metal complex group that comprises an iridium metal atom per the instant metal (see page 15, lines 5-16). The metal complex has aromatic groups with further R groups as connecting groups per the instant first-type inert spacer group (see par. 20, page 15). Doi et al. further teaches hydroxyquinoline groups that may be included in the polymeric substance as an aromatic group per the instant first-type functional group (see page 11). Although Doi et al. fails to exemplify a polymer according to the selected species, in view of the teachings of each required component including the polymeric backbone, first-type functional group, first-type inert spacer group, and metal complex as well as the teaching of the polymeric substance being branched (see abstract) and/or a random,

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block, or graft polymer, it would have been obvious to one of ordinary skill in the art to have formed a polymer according to the instant species, because Doi et al. teach all the required individual components of the polymer. Per instant claims 6, 20, and 34, it would have been obvious to have combined two aromatic groups in a 1:1 ratio in the Doi et al. polymer, because Doi et al. generally teach any combination of the aromatic groups. Per instant claim 9, Doi et al. further teaches carbazole groups as aromatic groups (see page 12). Per instant claim 14, 27, and 41, the iridium complex comprises arylquinoline groups (see page 15). Per instant claim 29, the luminescent substance is taught as part of a device (see par. 92).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (571)272-1523. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dawn Garrett
Primary Examiner
Art Unit 1774

D.G.
January 5, 2005